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**Operations Agreement (OA) between the  
Earth Observing System (EOS)  
ClearingHUse (ECHO) and the Client  
Partner**

**Version 2  
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National Aeronautics and  
Space Administration

\_\_\_\_\_ Goddard Space Flight Center \_\_\_\_\_  
Greenbelt, Maryland

## Revision History

Date	Version	Description	Author

## Preface

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This Operations Agreement (OA) is controlled jointly by Earth Observing System (EOS) ClearingHouse (ECHO) Operations managed out of the Goddard Space Flight Center (GSFC) Earth Science Data and Information System (ESDIS) Science Operations Office (SOO) and the Client Partner. The ESDIS Project assumes the management of ECHO Operations and ECHO Development. The ECHO Operations Manager will maintain a master copy of this agreement. Both ECHO Operations and the Client Partner can propose changes to this document, but both parties must agree on the change. ECHO Operations agrees to make changes to the master copy once they have received e-mail acknowledgment and agreement from the Client Partner. Changes will be made in the form of a new revision. The revised version will then be forwarded to each ECHO Client Partner, which will then become the official version and supersede all earlier versions.

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ECHO Operations and the Client Partner agree to place this OA under the configuration management of their respective organizations and to maintain supporting information as specified in this agreement. They further agree to coordinate changes to this OA between and within their respective organizations.

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## **Section 1. Introduction**

### **1.1 General**

The EOS ClearingHouse (ECHO) is an enabling framework built by NASA's Earth Science Data and Information System (ESDIS) Project to allow different data systems and services to work together. ECHO is an open system based on Extensible Markup Language (XML) and Web Service technologies; its Application Program Interfaces (APIs) are published for use by the science community to exchange data, information, and services. XML messages that a user passes in and receives from the ECHO API interface conform to a set of Document Type Definitions (DTDs). The DTDs and API are published on the ECHO website, and the related documents are listed in Section 2.

An ECHO Client Partner is an entity that participates with ECHO by developing a software application that communicates with ECHO using the API. The API allows for various client types (e.g. user-interactive, metadata harvesting, other batch processing) for various end users (e.g. scientists, other clients). Most ECHO clients provide access to ECHO's Earth Science metadata and browse catalog and order broker, but other client objectives exist (e.g. Data Partner facilitation, metrics collection). The API also has a user management component.

More information on ECHO is available on the ECHO website:

<http://www.echo.nasa.gov/>.

### **1.2 Purpose**

The purpose of this document is to define the working agreement between ECHO Operations and the Client Partner.

### **1.3 Scope / Intended User**

This agreement covers the Client Partner roles and responsibilities in the operational ECHO system and the corresponding roles and responsibilities of ECHO Operations. Section 4 – 8 describes the ECHO and Client Partner roles and responsibilities for the following high level topics: Client Development and Testing, Client Operations, New Versions of ECHO, ECHO and Client Partner Communication, and Metrics. This agreement will take effect once the ECHO Operations and Client Partner representatives have signed this document and last for the duration of ECHO operations. This document is for ESDIS project personnel, Client Partner personnel, and ECHO Operations personnel. The document assumes the reader is moderately knowledgeable about ECHO.

## **Section 2. Related Documents**

The following documents apply in defining this interface or in obtaining background information relative to this interface.

<b>Document Title</b>	<b>Date</b>	<b>URL</b>
ECHO Operations Concept	March 2002	N/A
ECHO Operations Plan	December 2002	<a href="http://www-v0ims.gsfc.nasa.gov/v0ims/DOCUMENTATION/ECHO/EOP1.0.pdf">http://www-v0ims.gsfc.nasa.gov/v0ims/DOCUMENTATION/ECHO/EOP1.0.pdf</a>
ECHO Client Partner Application	June 2004	<a href="http://www.echo.nasa.gov/client_partners/client_docs/ClientPartnerApplicationForm1.pdf">http://www.echo.nasa.gov/client_partners/client_docs/ClientPartnerApplicationForm1.pdf</a>
ECHO API	Updated with each release	<a href="http://api.echo.eos.nasa.gov/echo/message_detail.html">http://api.echo.eos.nasa.gov/echo/message_detail.html</a>
ECHO Query Language, Collection Results, and Granule Results DTDs	Updated with each version	<a href="http://www.echo.nasa.gov/reference/">http://www.echo.nasa.gov/reference/</a>
Searchable Parameters for Current ECHO Version	Updated with each release	<a href="http://www.echo.eos.nasa.gov/documents/ECHO_5.5_Searchable_Parameters.pdf">http://www.echo.eos.nasa.gov/documents/ECHO_5.5_Searchable_Parameters.pdf</a> (With each new version, "5.5" in the URL will change to reflect the current version.)
Operational System Holdings Report and System Availability	Updated weekly	<a href="http://www.echo.nasa.gov/status/status.shtml">http://www.echo.nasa.gov/status/status.shtml</a>
ECHO Partner Test Interface	Updated with each version	<a href="http://129.165.194.187:8103/sos/v/comm/work/8405BD61-9B39-AEA2-9695-FFBC77416918/contractList">http://129.165.194.187:8103/sos/v/comm/work/8405BD61-9B39-AEA2-9695-FFBC77416918/contractList</a>
ECHO Test Plan	Updated with each version	N/A

## **Section 3. ECHO Ops and Client Partner Overview**

### **3.1 ECHO Operations Overview**

The ECHO system accepts metadata from different Data Partners, archives the metadata, and then allows Client Partners to give access through catalog search and order capabilities to end users. ECHO brokers the orders to the appropriate Data Partners. ECHO Operations (Ops) operates the ECHO system and provides user support and outreach. The ECHO Ops team can be reached by e-mail at [echo@killians.gsfc.nasa.gov](mailto:echo@killians.gsfc.nasa.gov) and by phone at 301-352-4680.

## **Section 4. Client Development and Testing**

### **4.1 Development**

ECHO Ops agrees to support the Client Partner's use of the ECHO APIs. ECHO Ops agrees to assist Client Partners while they are learning the API and agrees to suggest different ways a Client Partner can use the API to build their client. ECHO Ops agrees to discuss client development approaches with the Client Partner.

ECHO Ops agrees to provide tools to help with client development, including a reference client and reusable client components collected from other clients for general use.

The Client Partner agrees to provide feedback on use of ECHO APIs and Partner tools in development efforts.

The Client Partner agrees to communicate their high-level milestones and deadlines to ECHO Ops.

The Client Partner agrees to communicate any major client scope changes (e.g. client type changes, user community changes) to ECHO Ops.

### **4.2 General Testing**

ECHO Ops agrees to support Client Partner's client testing.

ECHO Ops agrees to provide a partner test system for client testing. The partner test system is a separate copy of the current operational version of ECHO with a separate metadata catalog that does not affect the operational system.

The partner test system has dummy providers that take ECHO orders and reply with canned responses, not the actual data. Each ECHO Data Partner previously populated the dummy providers with a sample, standard set of real world metadata. ECHO Ops agrees to provide documentation and tools to the Client Partner, including information (e.g. dataset names, time period) about the test metadata currently available through the dummy providers on the partner test system. If the Client Partner needs additional

metadata to fully test their client functionality, ECHO Ops agrees to work with the Data Partners to make this metadata available.

The Client Partner agrees to complete all testing, except scheduled end-to-end tests, on the partner test system. The Client Partner can complete thorough testing with the dummy providers, including order testing.

The Client Partner agrees to inform ECHO Ops if the metadata on the partner test system is not adequate for testing.

### **4.3 End-to-End Testing**

ECHO Ops agrees to coordinate controlled client end-to-end tests with the Client Partner and one or more Data Partners on the operational system. The tests will take place at a particular time with specific data and media options.

The Client Partner agrees to schedule their end-to-end tests with ECHO Ops.

The Client Partner agrees to report the results of the end-to-end test to ECHO Ops.

## **Section 5. Client Operations**

ECHO users are Data Partners, Client Partners, and Service Partners.  
End users are the Data, Client, and Service Partners' users.

### **5.1 Daily User Support - ECHO User and End User Support**

ECHO Ops agrees to be available to users from 8am to 7pm ET, Monday through Friday and after hours support can be arranged as needed. ECHO Ops agrees to serve as the liaison for direct interactions between Data Partners, Client Partners, and Service Partners. Client end users are customers of the Client Partner. End users interact with an ECHO Client that should provide its own customer support services information. When the end user has a problem (e.g. an end user does not know how to register as an ECHO user, an end user does not know how to set their user preferences, an authorized end user needs access to restricted metadata, an end user has not received ordered data), the end user should contact the Client Partner's customer support services. If the Client Partner customer support services can't figure out the end user problem, the Client Partner customer support services contacts ECHO Ops. ECHO Ops figures out the problem. If the problem is with the Data Partner, then ECHO Ops resolves the problem with the Data Partner. ECHO Ops informs the Client Partner customer support services of the resolution, and then the Client Partner customer support services contacts the end user.

ECHO Ops agrees to refer the Client Partner's customer support services and their end users' to the Data Partner if there is a question about the Data Partners' data.



ECHO Ops agrees to track and report on all errors reported by the Client Partner and perform troubleshooting when appropriate to determine the cause of the error, which may include coordinating with the Data Partner and ECHO Development team.

The Client Partner agrees to provide customer support services to assist end users. The Client customer support services agrees to work with ECHO Ops to resolve end user problems that cannot be resolved by the Client Partner customer support services (e.g. order status, availability and visibility of data holdings for search and order, data inquiries).

## **5.2 Operations Guidelines**

The Client Partner agrees to put measures in place to prevent denial of service attacks on ECHO.

The Client Partner agrees to develop their client to prevent the excessive use of the system resources at the detriment of other ECHO users. The Client Partner agrees to make use of constraints available through the API to better target queries and agrees to limit queries (e.g # of data providers, # of datasets) and limit orders to reasonable sizes.

The Client Partner agrees to present the Data Partners' metadata and data correctly. If the Client Partner has any questions about the metadata and data, the Client Partner should contact ECHO Ops or the Data Partner customer support services.

The Client Partner agrees to provide contact information for the client support services clearly to the end user on the client.

The Client Partner agrees to put the ECHO symbol on the client.

The Client Partner agrees to NASA's privacy policy and agrees to display the privacy policy on the client.

The Client Partner acknowledges that there are consequences if the Client Partner inappropriately interacts with ECHO and does not follow the operations guidelines outlined in this section. The Client Partner will be warned and potentially blocked from communicating with ECHO.

## **Section 6. New Versions of ECHO**

### **6.1 New Version Testing**

ECHO agrees to deliver a system that meets the requirements and has complete functionality. ECHO Development and External Test are responsible for following the ECHO Test Plan that is updated for each new version.

ECHO Ops agrees to notify the Client Partner of the opportunity to participate in an end-to-end test of a new version of ECHO before that version replaces the current operational version.

The Client Partner agrees to assist in the end-to-end testing of new versions of ECHO if they have resources (system and personnel) available.

The Client Partner is responsible for testing their actions to make sure they understand their effects. The Client Partner is able to test their actions (e.g. query, present, order) using the ECHO API ([http://api.echo.eos.nasa.gov/echo/message\\_detail.html](http://api.echo.eos.nasa.gov/echo/message_detail.html))

## **6.2 New Version Deployment**

ECHO Ops agrees to notify the Client Partner of upcoming new version deployment schedule and changes between the new and current versions (e.g. new functionality and API, DTD, ingest, proxy, and tool changes). ECHO Ops agrees to notify the Client Partner of downtime associated with the new version deployment at least one week in advance. ECHO Ops agrees to use the website, mailing lists, and ETC meetings to communicate new version information. ECHO Ops agrees to update the ECHO Client Partner tools to the new version.

ECHO Ops agrees to operate the new version and the previous version of the ECHO system for TBD days to account for Client Partner acclimation.

The Client Partner agrees to change to the new ECHO version unless it is fatal to continue operations. In the event of a major change, Client Partner will negotiate with ECHO Ops how long to maintain the previous version of ECHO to resolve the fatal conflict. New versions of ECHO may contain DTD and API changes that affect the Client Partner.

## **6.3 Training**

ECHO Ops agrees to provide training and hold workshops for the Client Partners.

ECHO Ops agrees to coordinate the logistics and topics for the training and workshop with the ECHO Technical Committee (ETC). ECHO Ops agrees to allow the Client Partner to report status, provide client and end user context, make policy decisions, affect requirements, approve designs, and assess priority of actions at the ETC meetings.

# **Section 7. ECHO and Client Partner Communication**

ECHO Ops agrees to maintain an up-to-date 508 compliant website available through <http://eos.nasa.gov/echo> for all ECHO users to find information about ECHO. The website will include upcoming release schedules and functionality and Client Partner

resources. ECHO Ops agrees to survey the user community to assess their satisfaction with the website.

ECHO Ops agrees to hold a weekly community meeting called the ETC meeting to discuss operations issues and technical details.

ECHO Ops agrees to maintain a problem reporting and tracking system. ECHO Ops agrees to provide weekly Operations status reports (e.g. system availability, system performance, data holdings) on the website. ECHO Ops agrees to call or e-mail the Client Partner directly about problems specific to them.

ECHO Ops agrees to communicate downtime in the following way:

- 1) ECHO Ops will send notification of planned downtime events for the week (both the operational and test systems) to the ECHO Status mailing list, [echo-status@killians.gsfc.nasa.gov](mailto:echo-status@killians.gsfc.nasa.gov). These items will also be posted on the ECHO web site, <http://www.echo.nasa.gov/>.
- 2) Prior to bringing the system down for a planned event, ECHO Ops will send a reminder to the ECHO status mailing list. People can be added to the ECHO Status mailing list at any time.
- 3) In the event of a confirmed system failure or other unplanned event, ECHO Ops will send notification to the ECHO Status mailing list as soon as possible (before the system is brought down or after we confirm a failure).
- 4) Following system restoration (from planned or unplanned event), ECHO Ops will send a follow up message to the ECHO Status mailing list as soon as possible after the system is restored.

The Client Partner agrees to inform the ECHO Operations group of scheduling needs and operational problems and issues by e-mailing [echo@killians.gsfc.nasa.gov](mailto:echo@killians.gsfc.nasa.gov) or by calling ECHO Ops at 301-352-4680. The Client Partner will have the opportunity to prioritize action items, issues, and new feature functionality.

## **Section 8. Metrics**

ECHO Ops agrees to provide the following metrics, which will be available to the Client Partner: number of ECHO registered users, number and list of registered clients, number and list of Data Partners, number of datasets, granules by dataset, and browse by dataset, number of subscriptions, number of submitted orders, and amount of scheduled and unscheduled downtime, and lag time for metadata to be staged for ingest. In addition, ECHO Ops agrees to provide search performance metrics.

ECHO Ops agrees to work with the ETC to determine what additional metrics are needed.

## **Appendix A: Acronym List**

ACL	Access Control List
API	Application Program Interface
DTD	Document Type Definition
ECHO	EOS Clearing House
EOS	Earth Observing System
EOSDIS	Earth Observing System Data and Information System
ESDIS	Earth Science Data and Information System
ET	Eastern Time
ETC	ECHO Technical Committee
GSFC	Goddard Space Flight Center
N/A	Not Applicable
NASA	National Aeronautics and Space Administration
OA	Operations Agreement
POC	Point of Contact
QA	Quality Assessment
SOO	Science Operations Office
TBD	To Be Defined/Determined
URL	Uniform Resource Locator
XML	Extensible Markup Language

## Appendix B: Points of Contact (POC)

### ECHO POC

What	Details	POC Title/Name	Used by	Used for
Customer Services Support Telephone Number E-mail address	1-301-352-4680  echo@killians.gsfc.nasa.gov	Customer Support Coordinator	Client Partner Customer Services Support	Customer Services Support
Policy Questions and Problem Resolution	1-301-614-5189 Ayriss.A.Narock@nasa.gov  1-301-614-5326 Jeanne.Behnke@nasa.gov	ECHO Operations Manager	Client Partner Customer Services Support and Manager	Problem resolution and escalation